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ABSTRACT

This semantic analysis assumes the overall framework of an extended standard theory of grammar, focusing on the lexicon and making a case for semantic mapping. It assumes Chomsky's (1986) theory that the projection of a verb and its arguments into syntax is determined by its lexical specifications. It further accepts the arguments of Williams (1981), Jackendoff (1983, 1990), Pustejovsky (1988, 1995), and Van Hout (1996) that a generative capability of the lexicon is a useful and highly valued strategy that makes significant generalizations about natural languages. Salone (2000) showed that an event-semantic analysis could contribute to the understanding of syntax and semantics of verbal affixes in Bantu languages. This work highlighted the efficacy of introducing semantic rules of verb-frame alternation and semantic typeshifting in order to maximize the generative capacity of the lexicon, thereby allowing the productivity of these affixes to be apparent. It focused on the semantic relationship between the basic and derived forms of the causative and prepositional or applied forms in Kiswahili. It concludes that regardless of the syntactic framework used, the syntactic processes needed for passive will have to coexist with semantic processes: event-semantic argument interpretation, adjustments to the foci on the verb, typeshifting of events, where needed. (Contains 32 references.) (SM)

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Dr. S. B. Saloné

Event Semantics, Typeshifting and Passive in Swahili

ED 479 652

1.0 INTRODUCTION. This paper assumes the overall framework of Extended Standard Theory of Grammar, with a focus on the lexicon. It is primarily a semantic analysis and, therefore, might well be incorporated into a number of different syntactic frameworks. It assumes Chomsky's (1986) theory that the projection of a verb and its arguments onto syntax is determined by its lexical specifications. It further accepts the arguments put forth by Williams (1981), Jackendoff (1983, 1990), Pustejovsky (1988, 1995), and Van Hout (1996) that a generative capability of the lexicon is a useful and highly valued strategy that makes significant generalizations about natural languages.

2.0 Saloné(2000) following Pustojovsky and Van Hout, showed that an event-semantic analysis can contribute favorably to our understanding of the syntax and semantics of verbal affixes in Bantu languages. This work showed the efficacy of introducing semantic rules of verb-frame alternation and semantic typeshifting in order to maximize the generative capacity of the lexicon, thereby allowing the productivity of these affixes to be apparent. At the same time, this generativity was shown to cut redundancy in the lexicon. The semantic relationship between the basic and the derived forms of the causative and prepositional or applied forms in Kiswahili was the focus of this study.

The analysis of the prepositional endings of Saloné (2000) had at its foundation the theory that these forms are in large part semantic and, therefore, will require a semantic analysis. The semantic nature of these endings is manifested in the following ways:

- Arguments are introduced and are given new semantic roles. The newly introduced argument is the beneficiary.
- The event-semantic focus of the verbs themselves are altered This alteration shifts the focus of the verb away from the patient or theme, toward the beneficiary(or in some cases, the instrumental argument) of the event.
- The perspective on the events is altered.

Some examples of the types of data covered by these rules:

(1.) Mariamu alipika chakula (neutral). "Mary cooked the food."
(2.) Mariamu alimpikia baba chakula (applied). "Mary cooked food for father."

(3.) Hamisi ananunua shati (neutral). "Hamisi is buying a shirt."
(4.) Hamisi ananinunulia shati (applied)."Hamisi is buying me a shirt."

The following semantic rule was put forth to account for the semantic changes manifested between the neutral form of the verb and the applied/prepositional forms. I repeat this rule from Saloné (2000):

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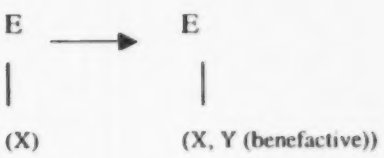



An event adds an internal argument that is the beneficiary of the event. Using this rule, the relationship between the neutral verbs with ( -a) and the applicative verb frames or sets with ( -ia/-ea) is accounted for. In this way, whole groups of verbs are generalized upon and can be handled with their lexical entries and the verb frame alternation rules which relate them. This analysis provides a means of handling these data largely within the lexicon. The significant gain here is that whole groups of verbs are accounted for using each frame alternation rule.

The causative alternations were also considered in Saloné (2000).

(6.) Mtoto aliamka (neutral). "The child woke up."
(7.) Mariamu alimwamsha mtoto (causative). "Mary woke up the child."

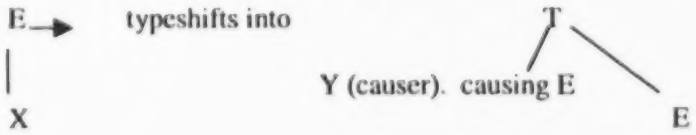
(8.) Maji yalichemka (neutral). "The water boiled."
(9.) Mariamu alichemsha maji (causative). "Mary boiled the water."

The semantic generalizations:

A subject argument is introduced (a causer).
A caused event is introduced.
A complex sub-event is embedded under the caused event

In these types of examples, the introduced argument is a causer. And, very importantly, these types of alternations involve causativization with an event typeshift of a simple transitive or intransitive event to a caused transitive/intransitive subevent. The rules are shown below:

(10.)




An event changes to become a causing event with an added causer argument. This represents a formal event typeshift.

Data Conclusions: Prepositional and Causative. I summarize the event-semantic findings of Saloné (2000) in the following chart:

(11.)

| Neutral /**BASIC** Verb Form (-a) | Altered **APPLIED** Verb Form (-ia)/ (-ea) | Altered **CAUSATIVE** Verb Form (-isha) (-esha |
|---|---|---|
| Subj (DO) | Subj DO IO | [Subj ] s1 [ Subj (DO)]s2 |
| Arguments | Added **benefactive** | Added **causer** arg. |
| | Added **instrumental** | |
| Events | The **focus** of the event shifts. | Two events: causing event, caused event |
| | | **(event typeshift)** |

The event-semantic analysis helps us to convey the similarities between the two verb forms and the differences. Both the applied and the causative involve an increase in arguments and a redirection of the focus on the event. The added participant for -ia verbs is a non-agent; the added participant for -isha verbs is an agent. The formalism for the prepositional does not involve event type shifting; the formalism for causativization involves event type shifting, where there is a radical change in the derived frames, with the caused event containing an embedded event. Both suffixal forms participate in alternation or frame relationships with the neutral verbs -a.

3.0 Passives also involve verbal derivation in Bantu languages. Like the causative and the applied verb forms, the passive rule requires alterations in argument structure and re-focusing of the events. One important difference stands out in the derivation of passive: it involves syntactic rules of universal grammar. Because passive is a syntactic process, the way is paved for a close cooperation between the semantics and the syntax . This is just the type of situation that will suggest a dynamic for the interaction between the syntax and the semantics, or more specifically for the interface between them.

We will begin with certain syntactic assumptions about the passive. As noted in Demuth (1989 ), the passive involves movement of the NP from [NP VP] position as object of the verb into [NP S] position as subject of the sentence. The moved N receives nominative case. The movement of the NP leaves behind a trace that starts an argument chain (A-chain). Accusative case is absorbed. According to Demeuth, in Sesotho, [w] or [uw] absorbs the external theta role, which can optionally be assigned to an oblique object marked by the ke by phrase. Put another way, a noun object of an active sentence becomes a noun subject of a passive sentence.

Some Swahili examples:

(12.) Mama a-li-kata mkate.
Mama pro-pst-cut bread
Mother cut the bread.

This sentence can be passivized as shown here:

(13.) Mkate u-li-kat-wa na mama.
bread pro-pst-cut-pass by mother
The bread was cut by mother.

Current theories have suggested that the semantics will have as its input case-marked S (surface) structures, which serve as input to the semantics. After all syntactic rules have applied, the event-semantic rules will express the generalizations about the change of arguments and the relations between arguments, as well as the change in focus of the verb. A flexible mapping system such as the CHESS mapping model of Van Hout (1996) (see here below) will make the semantics clear.

From an event-semantic perspective, the following need to be stated: (1) the focus on the event is different in the passive sentence as compared to the active sentence. The passive external argument contrasts with that of the vast majority of sentences in that the external argument is the receiver of the action, the theme. The focus of the event is on the receiver of the action, not on the doer. (2) The doer or agent will be contained within a na-phrase to be contained within the VP. In other words, the agent is suppressed. (3) The passive verb is indicated for expressing the "effect" of the event, rather than the active doing of the event. From the perspective of the focus on the event type, the passive sentence bears a striking resemblance to at least one other sentence type in Swahili. Notice the stative (-ika/-eka) suffix, whose verb would also have to be sub-categorized for a subject, which is a non-agent. The subject is a theme, which is acted upon by an un-specified agent.

In yet another respect, the passive shows similarity to both the causative and the prepositional derivative endings. They are all accompanied by a change in the focus or perspective on the event. The perspective on the -ia verb changes toward the beneficiary or in some dialects the instrument; the perspective on the -isha verb changes toward causation; and the perspective on the -wa or passive verb changes the event to focus on the thing or person affected by the event, the theme/patient. At the same time, it focuses away from the doer of the event.

A second way that the events are affected by changes in their event sturcture is in the number of arguments or in changes in the argument structure. In the prepositional, the arguments are increased by one. In the causative, the arguments are also increased by one. In the stative, an argument is de-emphasized. Finally, in the passive sentence, the argument in subject position is not an agent, as expected. Also, the agent is contained within a -na phrase.

In the passive, which is the concern of this paper, how are the arguments and the events altered by the addition of the derivational suffix? To summarize: The object argument is brought into focus, thereby rendering the subject argument relatively unimportant. Sometimes, the agent is suppressed. The event type is altered to reflect focus on the theme/patient.

The semantic rules for the passive will be represented similarly to the way they were represented for the causative and the prepositional:

(14.) E ⟶ E
| |
X ...Y Y na X

The X variable is the agent; the Y is the theme/patient in the active variant. The na X indicates the suppressed agent argument (a by phrase). We assume that these rules will operate on surface structures. It is also assumed that these rules will operate after the syntactic rule(s). The semantic rules interpret the correct argument roles and relations and make adjustments in the foci of the events. They can also alter the nature of the events, that is, change them from one type of event to another. The lexical-semantic rules make it possible to express generalizations over broad categories of verbs that function in a similar way. They can show relationships between whole sets of verbs or categories of verbs. The event-semantic rules can express the generalizations about various types of events and arguments in these various derived sentences (applied, causative, and passive). The existence of these generalizations and the non-language specific principles of event-argument interpretation facilitate language acquisition. Now we approach the question of the interaction between the syntax and the semantics.

## 4.0 Lexical-Semantic Flexibility at the Interface

A challenge for mapping systems is posed by verbs that are flexible as to how many syntactic argument positions they project, which positions they project and how they map their arguments onto various positions. There are different views on how to account for this flexibility. (1) Lexical. One can incorporate a verb's flexibility into its lexical representation. The verb has more than one lexical representation. These then are linked to a certain verb frame. This is the typical case of sub-categorization (Chomsky 1965, Emonds 1991). Another type of lexical approach might allow a flexible mapping system, which maps one verb with its basic lexical specification onto more than one verb frame (Van Hout 1996). (2) Syntactic. A verb has one lexical representation. Syntactic operations, such as movement of an argument, create flexibility (Baker 1988). The position taken here is that espoused by Van Hout that maps one verb onto more than one frame. This would apply to basic verbs in Bantu languages that can map onto many derivational frames.

The basic primitive put forward in the CHESS model proposed by Van Hout is event participant. At first glance, this seems like a simple alternative notation for theta role, argument and LCS variable. Participant is more restricted than these mentioned, where participant refers only to semantic arguments of the verb; whereas, theta-role, arguments and LCS variables can refer to "goal" and "source" phrases as well. She further claims that "...a verb only needs to specify the number of event participants, not their semantic kinds." She relies on a series of interpretational principles to differentiate the participants semantically, relying on the works of Grimshaw (1990), Davis & Dermirdache (1995) Pustejovsky (1991). She asserts, "...a participant involved in the first subevent of a transition is more agentive than one involved in the second subevent." And for syntactic argument positions: If there are two arguments, an argument in subject position is relatively more agentive than one in object position (cf. Emonds (1991), Borer (1994). Also, morphological affixes contribute to the semantics (e.g. passive morphology attributes agentivity.)

Van Hout's justification for taking the participants as primitive are many, however, I will summarize several of them here:

- In order to minimize redundancy, one would want to predict certain information from given information.

- She concludes that ".....event type does not determine unambiguously the number of event participants: processes and transitions take either one or two. Moreover, the event type does not by itself determine the verb frame a verb maps onto; each event type can be associated with different verb frames."
- She then proposes to take the number of participants as basic and to derive the event types.
- Mapping needs to see the event structure of the predicate, rather than that of only the verb.
- She concludes that an algorithm that links a verb's lexical arguments onto syntactic positions won't work.
- She opts to use a Checking Event-Semantic Structure system ( CHESS) as a checking approach to mapping. The system checks features, rather than a linking approach that associates lexical arguments to syntactic positions.
- She "proposes that mapping is defined as the syntactic identification of the event structure of a predicate including its event type and the event participants." This is in contrast to a set of argument structures, lexical-conceptual structures or sub-categorization frames.
- Particular features are checked in certain syntactic configurations.

Swahili offers some evidence that such a mapping system is needed. The length of this paper prevents a thorough accounting; however, I will try to make some suggestions on how these data support this type of mapping.

1. The applied verbs, for which the choice of one frame or the other depends on the perspective on the event, offer their own justification. Since one can choose to view the event from the perspective of or focusing on one or the other participant, then no linear mapping or linking of arguments would suffice. Some flexibility has to be built into the mapping to reflect what seems intuitive-- that the speaker can choose a perspective based on how he/she views the event.

2. A mapping based solely on arguments or participants would not handle the facts because there is an identical line-up of participants in 4 different types of alternants: benefactive, instrumental, goal, directional. Only information about focus of event and type of event will distinguish them. If Van Hout's participant-based system were to be used here, a set of generalizations and universal principles would be needed to distinguish the various event types. Her event checking system (CHESS) might also assist in the interpretation of each event type.

3. A flexible mapping allows a more parsimonious lexicon while accounting for the data in a way that seems to reflect the psychological reality of verbal suffixes and verbs in these languages. If one could not show the flexibility of the verb-argument structures through lexical rules, much redundancy would reside in the lexicon. And along with that redundancy, significant generalizations would be missed about the relationship between verbs in various frames and of various event types. In Swahili, a linear mapping between verbs and arguments is not sufficient; rather, a one-many mapping is necessary, with the variables being based on the type of event and the number of participants. A system which allows the checking of event-semantic properties and the system of rule-governed flexibility is supported by these data.

5.0 Conclusions. Regardless of the syntactic framework used, the syntactic processes needed for Passive will have to somehow co-exist with semantic processes: event-semantic argument interpretation, adjustments to the foci on the verb, type-shifting of events where needed. The passive presents a unique problem within the area of verb frame alternations because of its status as a syntactic process. The Passive operations must be done by syntactic rules; and, the semantic interpretation of arguments, events and such must be done by the semantic component. And, in the case of Bantu languages, morphology plays a role. Whether one accepts Van Hout's CHESS system or some other system of mapping between syntax and semantics, the fact remains that lexical flexibility of verbs is a part of human language. As Van Hout needed to explain the facts of Dutch verbs, so do we need a flexible mapping to account for the variability that is allowed by the verbal extensions of Bantu languages.

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